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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,162	07/11/2001	Yuhzoh Tsuda	29900-20484.00	3874

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EXAMINER

BLUM, DAVID S

ART UNIT	PAPER NUMBER
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2813

DATE MAILED: 04/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/904,162

Applicant(s)

TSUDA ET AL.

Examiner

David S Blum

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 25-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 25-28, 31-32 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Usui in view of Pribat (US 4,999,314) and Bozler (US 5,362,682). Usui teaches all of the parts of the device of claims 25-28, 31-32 and 35-36 except for a second semiconductor crystal layer and the stripe shaped electrode. Usui teaches light emitting device with a mask containing a growth suppressing effect on a substrate and a semiconductor crystal layer on the substrate formed via the mask (see results and discussion and figures 1 and 3). Pribat describes multiple layers using lateral epitaxial overgrowth (figure 54, and column 12 line 27-column 13 line 16). Pribat also teaches the second mask (n+1) substantially over the opening in the lower mask and at an angle (figure 14).

Thus it would have been obvious to one of ordinary skill at the time of the invention to combine the substrate fabricated by Usui with further fabrication of semiconductor layers on the wafer by the same technique as suggested by Pribat in order to lower the

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dislocation density of the substrate with subsequently less defect propagation into a semiconductor device built into the substrate.

Bozler describes fabrication of lateral semiconductor layers from an optionally separable substrate (abstract). Boozler also shows a striped shaped ridge 3 microns from the mesa, forming a n-type electrode.

Thus it would have been obvious to one of ordinary skill at the time of the invention to combine the substrate fabricated by Usui with the substrate separation of Bozler in order to decrease on substrate costs and to provide a stripe shaped ridge for the electrode.

3. Claims 29-30 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Usui in view of Pribat (US 4,999,314) and Boozler (US 5,362,682) as applied to claims 25-28 above, and further in view of Edmond (US005592501A).

Usui, Pribat, and Boozler teach all of the positive steps of claims 29-30 and 32-34 except for the make-up of the quantum-well layer and the cladding layer. Edmond teaches a quantum-well layer of InGaN and a cladding layer of InAlGa<sub>0.5</sub>N (column 5 lines 30-65 and column 6 lines 4-10). Although in column 6 lines 4-10, Edmond teaches the cladding layers (14 and 15) are of un-stoichiometric AlGa<sub>0.5</sub>N, in column 5 lines 29-49, Edmond teaches the cladding layer may also be ABCN where A, B, and C are group III elements (ie. IN, Ga, and Al) and line 59 suggests the trace element to be Indium.

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Although this line refers directly to the waveguide layers, the preceding lines indicate the four elements may comprise the cladding layer.

One skilled in the requisite art at the time of the invention would modify Usui, Pribat, and Boozler, by providing the layers as described by Edmonds, to complete the structure to produce a light emitting structure.

### ***Response to Arguments***

4. Applicant's arguments filed 2/28/02 have been fully considered but they are not persuasive.

The applicant argues that claim 25 as amended is allowable because Pribat fails to teach the second later provided substantially over the openings of the first layer but rather over the first insulation layer. However, figure 14 (as others) shows the second layer substantially over the openings in the first layer.

The applicant further argues that new claim 27 is allowable because neither Pribat nor Boozler teach forming the layers at an angle. However, the term "at an angle" is sufficiently broad enough to encompass all angles, and both Pribat and Boozler teach this.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Blum whose telephone number is (703)-306-9168 and e-mail address is [David.blum@USPTO.gov](mailto:David.blum@USPTO.gov).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached at (703)-306-2794. Our facsimile number for Before-Final Communications is (703)- 308-7722 and for After-Final Communications is (703)- 872-9319. Our receptionist's number is (703)-308-0956.

David S. Blum

April 12, 2002



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